

SECTION 08720 - DOOR OPERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of door operators, hereby defined to mean power operated systems for opening and closing doors, is indicated on drawings and schedules, and by the requirements specified in this section.
- B. The applications of door operators include:
 - 1. Power units for doors to provide "barrier free" access.
 - 2. Power units for both leafs of a pair of doors to provide "barrier free" access.
- C. Related Sections: The following sections contain requirements that relate to this section.
 - 1. Finish Hardware as specified in Division 8.
 - 2. Aluminum Entrances and Storefronts as specified in Division 8.
 - 3. Steel Doors and Frames as specified in Division 8.
 - 4. Electrical Connections as specified in Division 16.

1.3 QUALITY ASSURANCE



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- A. Fire-Rated and Emergency Exit Openings: Provide door operators which comply with the requirements for doors as emergency exits, and do not interfere with fire ratings (if any), as certified by the manufacturer for the application shown.
 - B. Manufacturer Qualifications: Provide units produced by a firm with not less than 5 years successful experience in the fabrication of door operators of the type required for this project.
 - C. Installer Qualifications: An authorized representative of door operator manufacturer for both installation and maintenance of the type of units required for this project.
 - 1. Minimum Experience: Not less than 3 years experience in the installation and service of door operators by same manufacturer.
 - D. Standards Compliance: Provide door operators complying with applicable requirements of the following standards:
 - 1. ANSI A156.10 (BHMA 1601), "American National Standard for Power Operated Pedestrian Doors".
 - 2. ANSI/UL 325, "Standard for Safety ; Door, Drapery, Gate, Louver and Window Operators and Systems".
 - E. Product Substitutions: Reference to any material, product, article, thing, service or process by name, make or catalog number shall be interpreted as establishing a standard of quality and not construed as limiting competition or prohibiting substitution of any such material, product, article, thing, service or process.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data roughing-in diagrams, wiring diagrams, certified performance reports, installation instruction, parts lists, maintenance instructions and general published recommendations for each component of the door operating systems



required. Include data substantiating that the system will perform as specified. Transmit a copy to the installer.

1. Templates and Diagrams: Furnish templates, diagrams and other data to fabricators and installers of related work, as needed for coordination of operators with doors, frames, hardware, concrete work, electrical work and other work.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, manufacturers offering door operators which may be incorporated in the work include, but are not limited to the following:
 1. Electro-Mechanical Operators for single leaf doors.
 - a. Keane Monroe Corp.; Series 3000
 - b. Horton Automatics; Series 7000
 - c. Dor-o-matic; Senior-Swing
 2. Electro-Mechanical Operators for "barrier-free" access doors in pairs.
 - a. Keane Monroe; Series 3000
 - b. Horton Automatics; Series 7000
 - c. Besam; Swingmaster

2.2 GENERAL DOOR OPERATOR REQUIREMENTS

- A. Capacity of Unit: Provide unit of the size recommended by manufacturer's published data for the door size, weight, movement, and condition of exposure, for long-term maintenance-free operation under normal traffic load for the type of occupancy indicated.



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- B. Hinge Operation: For swing-type door units, refer to Division-8 section "Finish Hardware", to determine the type of hinge action to be matched by the door operator action (butts, center pivots, or offset pivots).
 - C. Exposed Housing for Operators: (Type A & B) Extruded or formed aluminum cover of 6006-T6 alloy, 1/8 inch (3mm) minimum thickness, with provisions for maintenance access. Provide with fasteners concealed when door is in closed position. Provide in finish to match door hardware. Cover to extend across door opening.
 - D. Adjustment Features: Provide operators with fully adjustable opening speeds, closing speeds and checking speeds.

2.3 SWING DOOR OPEATORS

- A. Electro-Mechanical Operators for Swing Doors: Manufacturer's standard electro-mechanical unit with doors power-opened and spring-closed with closing speed controlled mechanically by gear train and dynamically by braking action of electric motor, with power off; with easy manual operation including spring closing with power off; operator action and mounting as indicated below.
- B. Motor voltage shall not be required and will be off when the door is in the closing mode and fully closed. The door can be manually operated with power on or off and will not damage the operator. The controls shall be furnished with a selection switch that provides for two methods of actuating the automatic door. The selection switch enables the owner to select the desired operation and adapt to changing conditions.
 - 1. Manual/Automatic: Manual operation when pushed open, automatic operation when actuated by push-button switch.
 - 2. Automatic: Automatic operation by either pushing the door manually ("Push-N-Go") or by push button switch. The Push-N-Go time delays shall be 30 percent less than push-button time delay.

For compliance with Standard ANSI A156.19 the operator shall include the following variable adjustments.

- a. Opening speed - 3 to 10 seconds
 - b. Closing speed - 3 to 10 seconds
 - c. Time delay before closing 5 to 28 seconds.
3. Opening and closing force, measured 2 inches (50 mm) from the lock stile of the door, not to exceed 5 lbf. (22N) of force to stop the door when operating in either direction.
 4. The operator shall be mounted and concealed in:
 - a. Extruded aluminum cover not less than 1/8 inch (3mm) thickness. Cover shall be 4 inches (100 mm) x 6 inches (150 mm), running full width of door in an overhead, surface-mounted installation.
 5. Electronic Controls: A self-contained electronic circuit shall control the operations and switching of the operator. The electronic control shall provide low voltage power supply for all means of actuation. The control shall include time delay (1 to 60 seconds) for normal cycle, as well as the following built in features:
 - a. Torque limiting for controlled forces on opening.
 - b. Acceleration control for smooth starts and recycle.
 - c. Special circuitry for reducing power to the motor when door is in HOLD-OPEN mode, extending longevity and assuring reliability.
 6. Operations: Power Open- The automatic door operator shall power the door open by forces transmitted mechanically to the drive shaft and shall maintain a constant engagement throughout the opening cycle.
 - a. The operator shall be designed to counteract exterior wind conditions and/or interior stack pressure without the need of additional power assist mechanisms. The automatic door system shall function as a manual door closer in the event of a power failure.



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- b. Spring Close - The automatic door operator shall be spring closed. Closing forces shall be regulated by utilizing the motor and gear assembly as a dynamic brake. The spring shall be compression type.
 - 7. Provide overhead surface-mounted operators.
 - 8. Operator Action: As indicated by door swing on drawings.

2.4 DOOR OPERATOR CONTROLS AND ACCESSORIES

- A Wall Push-Plate Switch: Manufacturer's standard semi-flush wall-mounted door control switch plate, intended for operation by touch of elbow, by occupants familiar with door operating system. Operation shall be push to close or open. Provide as located on drawings.
- B. Sound Control: Provide insulating lining on inside of operator cover.



PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install complete door operator system in accordance with manufacturer's instructions, controls, control wiring, and remote power units (if any).
 - 1. Refer to Division-16 sections for power connection specifications.
- B. Set tracks, header assemblies, operating brackets, rails and guides level and true to location, with adequate anchorage for permanent support.

3.2 ADJUST AND CLEAN

- A. After repeated operation of completed installation equivalent to 3 days use by normal traffic (100 to 300 cycles), readjust door operators and controls for optimum operating condition and safety. Lubricate operating equipment and clean exposed surfaces.

END OF SECTION 08720

